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The BROWSE project: improving and harmonizing models for operators, workers, residents and bystanders exposure assessment across the EU

Introduction

The approaches currently applied for the assessment of operator exposure as well as new approaches currently under development, were recently reviewed in an EFSA-funded study by the UK Pesticides Safety Directorate (now the Chemicals Regulation Directorate) and the University of Gent (Hamey et al. 2008). The main two models used in the EU for estimating operator exposure are UK POEM and German BBA. Both models are based on 'old' (German model: '80s; UK POEM: '70s-'80s) and limited data from non-GLP studies, for a limited number of exposure scenarios. Furthermore, the models are based on non-validated and dissimilar ways of normalisation with respect to parameters like units of exposure, area treated, operator body weight, defaults for personal protective equipment (PPE) and the statistical point estimate for the derivation of the surrogate exposure value.

Starting from the review by Hamey et al., EFSA (2009) developed a draft European guidance document, including proposals for standardized estimation of operator exposure in 12 scenarios for mixing/loading activities and 25 scenarios for application activities. However, EFSA has identified a number of limitations in the current state of the art. EFSA did not attempt to merge the datasets, to make maximum use of the available data, due to the time and resource limitations.

Consequently, EFSA proposed different models for different exposure scenarios (including the German, UK, PHED, EUROPOEM, Biocides and TNsG approaches). For some scenarios, inhalation and dermal exposures will be estimated from different models. All the models assume a linear relation between exposure and amount of pesticide applied or handled, but the data show significant non-linearity (Hamey et al. 2008) that will tend to over-estimate exposures when larger quantities are used (EFSA 2009). EFSA (2009) had no information on operator practices (use of controls and protective equipment) across Member States. Finally, results of similar studies can differ substantially, implying significant uncertainty when single studies are submitted for higher-tier assessments (Hamey et al. 2008).

Besides these gaps to be filled for operators exposure assessment, there is a clear lack of resident/bystanders models, as well as the need to support the implementation of the authorisation and sustainable use directives, and to address consistently stakeholders and gender issues.

Approach

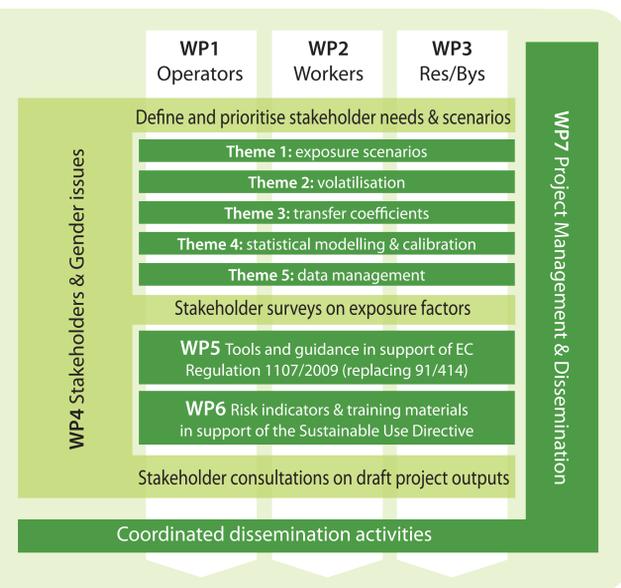
BROWSE (Bystanders, Residents, Operators and WorkerS Exposure models for plant protection products) is a 7th Framework Program project started on 1 January 2011 and lasting until the end of 2013. Total budget 2.6m euro (EU contribution 2m)

The workplan is organised in seven Work Packages corresponding to the main project objectives. In addition, several key cross-cutting themes are established to ensure their consistent and integrated treatment throughout the project. These are: exposure scenarios, volatilisation, transfer coefficients, statistical modelling and calibration, and data management.

Stakeholder groups are represented on the project's Advisory Panel as well as participating directly via consultations and workshops, and in surveys to obtain new data on factors influencing exposure.

Models for key exposure scenarios covering different regions of the EU will be developed in order of priority based on consultation with stakeholders, implemented as user-friendly software, and tested with end-users.

Project outputs will be delivered through established networks with end-users in EU and national authorities, national training organisations, the pesticide industry, and relevant trade unions and NGOs.



THE CONSORTIUM



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Aims

To address the limitations of the currently used approaches, the specific aims of the BROWSE project will be:

- 1 Development of a single, new and improved modeling framework for operator exposure, integrating all available exposure data, to replace the diversity of different models currently used.
- 2 Develop models for workers exposure, making best use of available data.
- 3 Develop new models for residents and bystanders, building on previous work done.
- 4 Involve all relevant stakeholders and end users and take full account of relevant gender issues in the development of new and improved exposure assessment methods and policy tools.
- 5 Use the new and improved exposure models to contribute to the implementation of (EC) Regulation 1107/2009 (including model software).
- 6 Contribute with these models to the implementation of the Thematic Strategy on the Sustainable Use of Pesticides.

Expected impacts

To address the limitations of the currently used approaches, the specific aims of the BROWSE project will be:

- 1 Improved exposure/risk assessment for B,R,O,W with appropriate protection for health, esp. vulnerable groups.
- 2 Contribute to mutual recognition in RA and reduce burden for MS and industry.
- 3 Improved training/awareness for operator & worker.
- 4 Improved public awareness.
- 5 Improved risk indicators for policy and national action plans.

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If you would like to have more information or get involved in the project please visit:

www.browseproject.eu